TECHNICAL MANUAL

TELETYPEWRITER SETS AN/FGC–20, AN/FGC–20X, AND AN/FGC–21

TM 11–2230
CHANGES No. 1

DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *18 October 1956*

TM 11–2230, 31 May 1956, is changed as follows:

The title of the manual is changed to read: **TELETYPEWRITER SETS AN/FGC–20, AN/FGC–20X, AND AN/FGC–21.**

The following information changes TM 11–2230 so that the manual also applies to the following equipment:

Nomenclature	*Order No.*
Teletypewriter TT–98A/FG	27133–Phila–56

Page 3, chapter 1. Add the following note at the beginning of chapter 1:

Note. Teletypewriters TT–98A/FG, procured on Order No. 27133–Phila–56, are essentially the same as Teletypewriters TT–98/FG covered in the technical manual. All information in the manual applies equally to Teletypewriters TT–98A/FG furnished on Order No. 27133–Phila–56 unless otherwise specified in this change.

Page 4, paragraph 4. Types of signal. Change "Neutral (20 or 60 ma), polar, or polal." to read **Neutral (20 or 60 ma), or polar. Polal operation is available only on Teletypewriters TT–98/FG.**

Page 15, figure 13. Change "RANGE FINDER DIAL ASSEMBLY" call-out to read: **SIGNAL LINE TERMINALS.**

Change "RANGE FINDER DIAL" call-out to read: **RANGE FINDER DIAL ASSEMBLY.**

Add the following note to figure 13:

NOTE: TELETYPEWRITERS TT–98A/FG, TT–99/FG, AND TT–100/FG DO NOT CONTAIN THE POLAR RELAY SWITCH.

Page 16, paragraph 22. Add the following after the last sentence: Teletypewriters TT–98A/FG, TT–99/FG, and TT–100/FG do not contain the polar relay or the POLAR RELAY switch.

Page 21, paragraph 29. In two places change "CAR WET" to read: **CAR RET.** In control column, change "REPEA Tkey" to read: **REPEAT key.**

Page 62, paragraph 77. Change the title of the paragraph to read: **77. Signal Circuits, Teletypewriter TT–98/FG Only**

Page 64, paragraph 77*b*(3). Change the figure reference to read: **(fig. 77).**

Page 65, figure 76. Change the caption to read: **Teletypewriter TT–98/FG receive circuit, without line relay.** Insert figure 76.1 after figure 76.

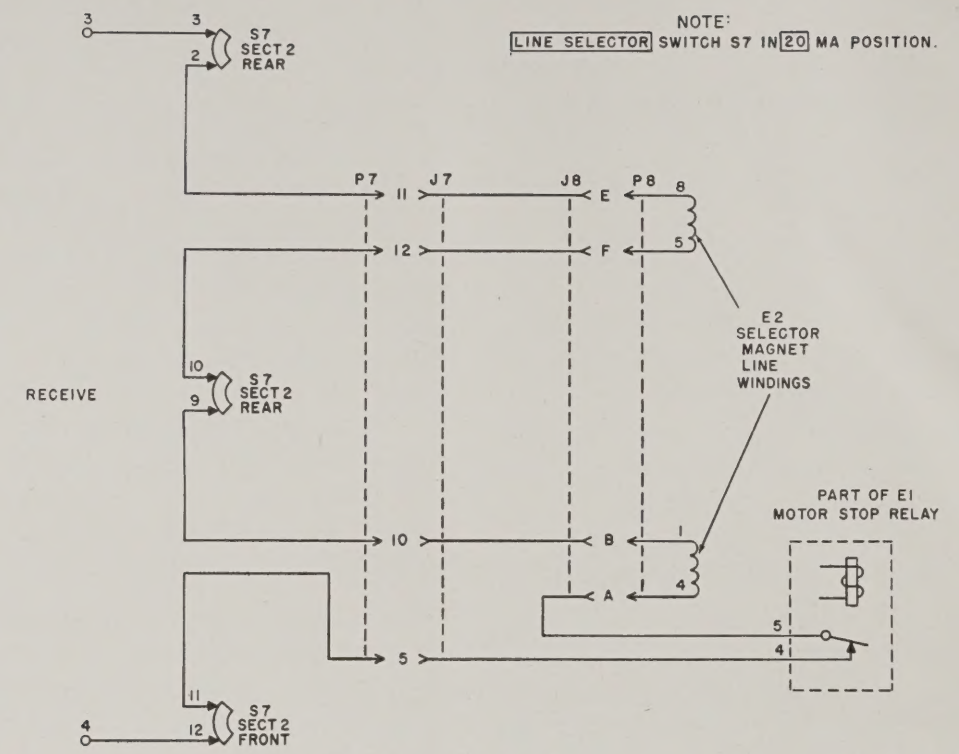
Page 66. Add the following after paragraph 77.

77.1. Signal Circuits, Teletypewriters TT–98A/FG, TT–99/FG, and TT–100/FG

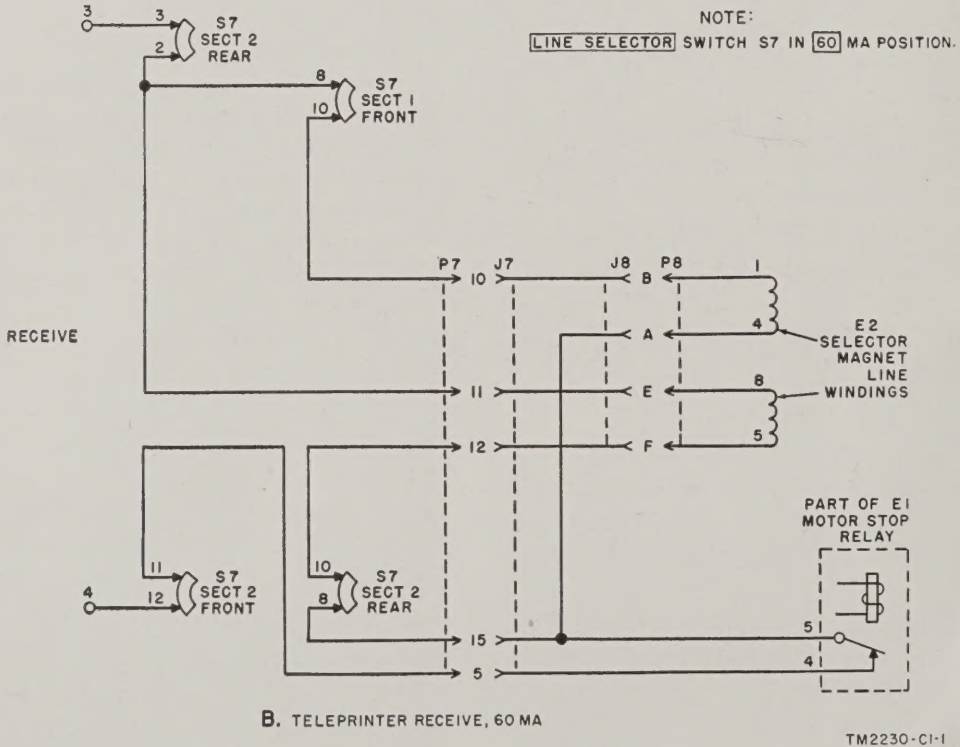
a. Send Circuit (fig. 75). The send circuit for these models is the same as described for the TT–98/FG, paragraph 77*a*(1) and (2).

b. Receive Circuit (fig. 76.1). This circuit receives impulses from the signal line and controls selector magnet E2 which, in turn, governs the position of the mechanical parts within the selector mechanism. The receive circuit terminates at terminals 3 and 4 of the terminal and switchbox. Either 20- or 60-ma signals may be received to operate selector magnet E2. LINE SELECTOR switch S7 adapts the circuit to the level of the signal line current. This switch places the windings of selector magnet E2 in parallel for 60-ma operation and in series for 20-ma operation. Each LINE SELECTOR switch S7 position setting is described separately in (1) and (2) below.

(1) *LINE SELECTOR switch S7 in 20-ma position and motor-stop relay E1 in nonoperated position* (A, fig. 76.1). Starting at terminal 3 on the terminal and switchbox, the circuit is traced to contact 3 on LINE SELECTOR switch S7 which is in the 20-ma position, through the switch rotor to contact 2. From contact 2 the circuit continues to terminal 11 of plug P7 and jack J7, to terminal E of jack J8 and plug P8, through the 8–5 line



A. TELEPRINTER RECEIVE, 20 MA



B. TELEPRINTER RECEIVE, 60 MA

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Figure 76.1. Teletypewriters TT–98A/FG, TT–99/FG, and TT–100/FG, receive circuit.

winding of selector magnet E2, through terminal F of plug P8 and jack J8, through terminal 12 of jack J7 and plug P7. The circuit continues to contact 10 of LINE SELECTOR switch S7, through the switch rotor to contact 9, to terminal 10 of plug P7 and jack J7. The circuit continues to terminal B of jack J8 and plug P8, through the 1–4 line winding of selector magnet E2, to terminal A of plug P8 and jack J8, to terminal 5 of motor stop relay E1, through a float and closed contact to terminal 4 of motor stop relay E1, to terminal 5 of jack J7 and plug P7. The circuit continues to contact 11 of LINE SELECTOR switch S7, through the switch rotor to contact 12, and is terminated at terminal 4 of the terminal and switchbox.

(2) *LINE SELECTOR switch S7 in 60-ma or P (polar) position, and motor-stop relay E1 in nonoperated position* (B, fig. 76.1). Starting at terminal 3 on the terminal and switch box, the circuit is traced to contact 3 of LINE SELECTOR switch S7, which is in either P (polar) or the 60-ma position, through the switch rotor to contact 2. At this point, the circuit divides. One part is traced to contact 8 of LINE SELECTOR switch S7, through the switch rotor to contact 10, to terminal 10 of plug P7 and jack J7, to terminal B of jack J8 and plug P8, through the 1–4 line winding of selector magnet E2, to terminal A of plug P8 and jack J8. The circuit continues to terminal 5 of motor stop relay E1 which is in the nonoperated position, through a float and closed contact to terminal 4 of relay E1, to terminal 5 of jack J7 and plug P7, to contact 11 of LINE SELECTOR switch S7, through the switch rotor to contact 12, and the circuit ends in terminal 4 of the terminal switchbox. From the point where the circuit divides, it can also be traced to terminal 11 of plug P7 and jack J7, to terminal E of jack J8 and plug P8, through the 8–5 line winding of selector magnet E2, to terminal F of plug P8 and jack J8, to terminal 12 of jack J7 and plug P7, to contact 10 of LINE SELECTOR switch S7, through the switch rotor to contact 8, to terminal 15 of plug P7 and jack J7, to terminal 5 of motor stop relay E1. Terminal 5 of motor stop relay E1 meets with terminal 4 of relay E1 and the circuit continues to terminal 5 of jack J7 and plug P7, to contact 11 of LINE SELECTOR switch S7 through the switch rotor to contact 12, and the circuit ends in terminal 4 of the terminal and switchbox.

Page 66, figure 77. Change the caption to read: **Teletypewriter TT–98/FG, receive circuit, with line relay, simplified schematic.**

Page 66, paragraph 78. Change the title of the paragraph to read: 78. **Local DC Circuits, Teletypewriter TT–98/FG.** Change the heading of *a* to read: **Test Circuit Without Relay (POLAR RELAY switch in OUT position)** (fig. 78).

a(2). Second sentence. Delete: "'ohm". Twentieth line, change "S8" to read: **S7.**

Page 67, figure 78. Change the caption to read: **Teletypewriter TT–98/FG test circuit without relay, simplified schematic.** Change "S8 SECT 1 REAR" to read: **S7 SECT 1 REAR.** Insert figure 78.1 after figure 78.

Page 68, figure 79. Change the caption to read: **Teletypewriter TT–98/FG test circuit with line relay, simplified schematic.**

Page 69, figure 80. Change the caption to read: **Teletypewriter TT–98/FG selector magnet bias (20 ma) circuit, without relay, simplified schematic.** Insert figure 80.1 after figure 80.

Page 70, figure 81. Change the caption to read: **Teletypewriter TT–98/FG selector magnet bias (60 ma) circuit, without relay, simplified schematic.** Insert figure 81.1 after figure 81.

Page 71, figure 82. Change the caption to read: **Teletypewriter TT–98/FG line relay bias (20 ma) circuit, simplified schematic.**

Page 72, figure 83. Change the caption to read: **Teletypewriter TT–98/FG line relay bias (60 ma) circuit, simplified schematic.**

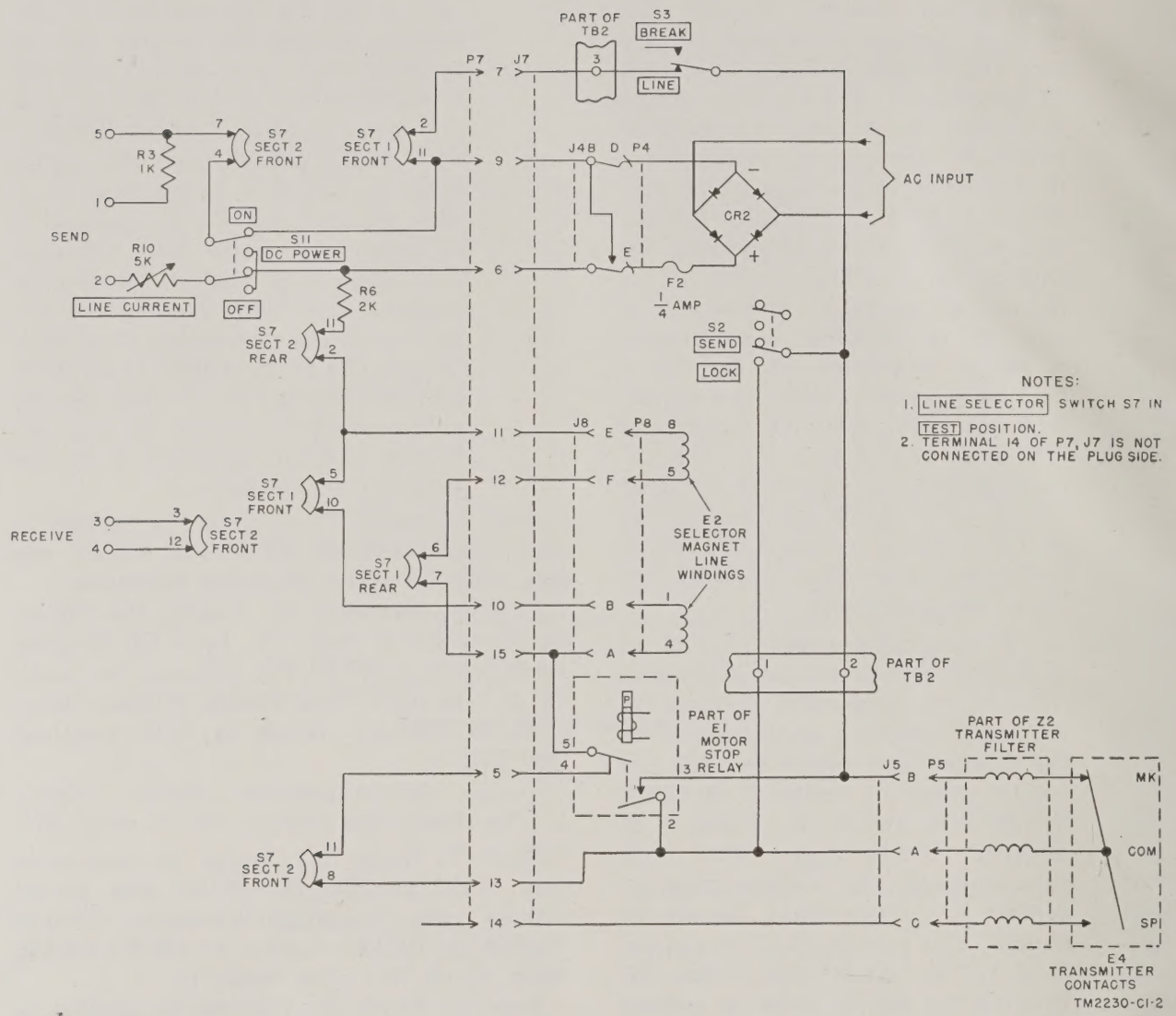


Figure 78.1. Teletypewriters TT–98A/FG, TT–99/FG, and TT–100/FG, test circuit, simplified schematic.

Page 72, figure 84. Change the caption to read: **Teletypewriter TT–98/FG selector magnet receive with relay circuit, simplified schematic.**

Page 73, paragraph 78*f*(1). Delete the second sentence and substitute: The motor stop relay on Teletypewriter TT–99/FG (having weather symbols) is a sealed unit consisting of the same two relays mentioned above plus an additional relay designated C.

Page 75, paragraph 78*f*(3). Line 1. Change "TT–9/FG" to read **TT–99/FG.**

Page 75. Add the following after paragraph 78.

78.1. Local DC Circuits, Teletypewriters TT–98A/FG, TT–99/FG, and TT–100/FG

a. Test Circuit (fig. 78.1).

(1) The test circuit provides a means of placing the transmitting and receiving mechanism of the teleprinter into a local 60-ma neutral circuit for testing purposes without affecting the external signal circuits. LINE SELECTOR switch S7 must be in the TEST position.

(2) The circuit can be traced from the positive side of rectifier CR2 through fuse F2, to terminal E of plug P4 and

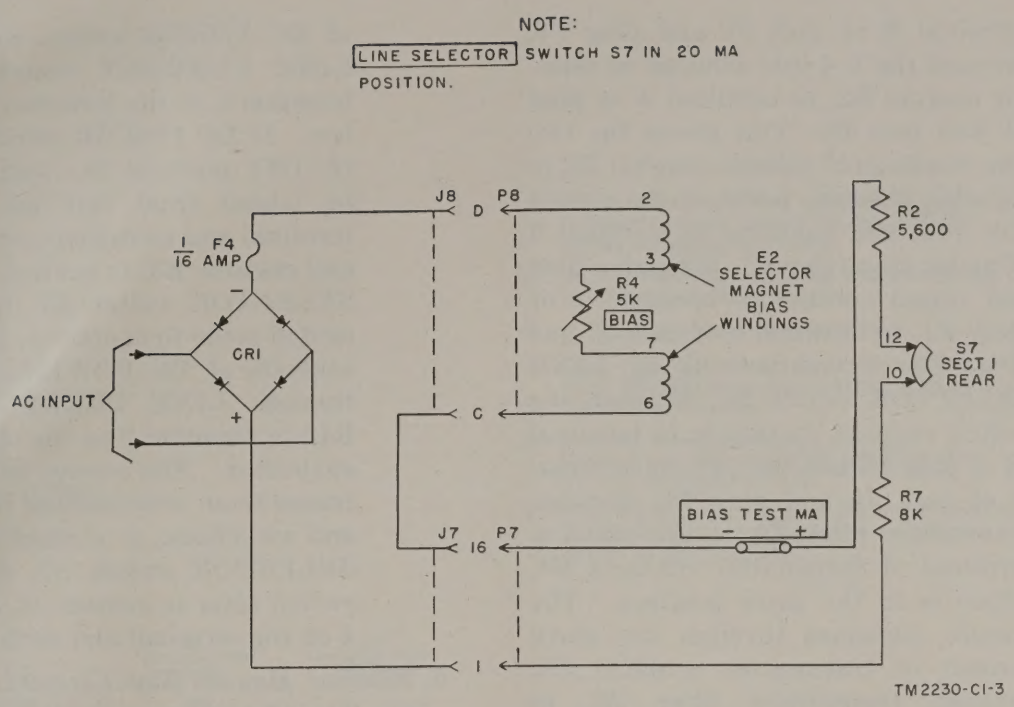


Figure 80.1. Teletypewriters TT-98A/FG, TT-99/FG, and TT-100/FG, selector magnet bias (20 ma) circuit, simplified schematic.

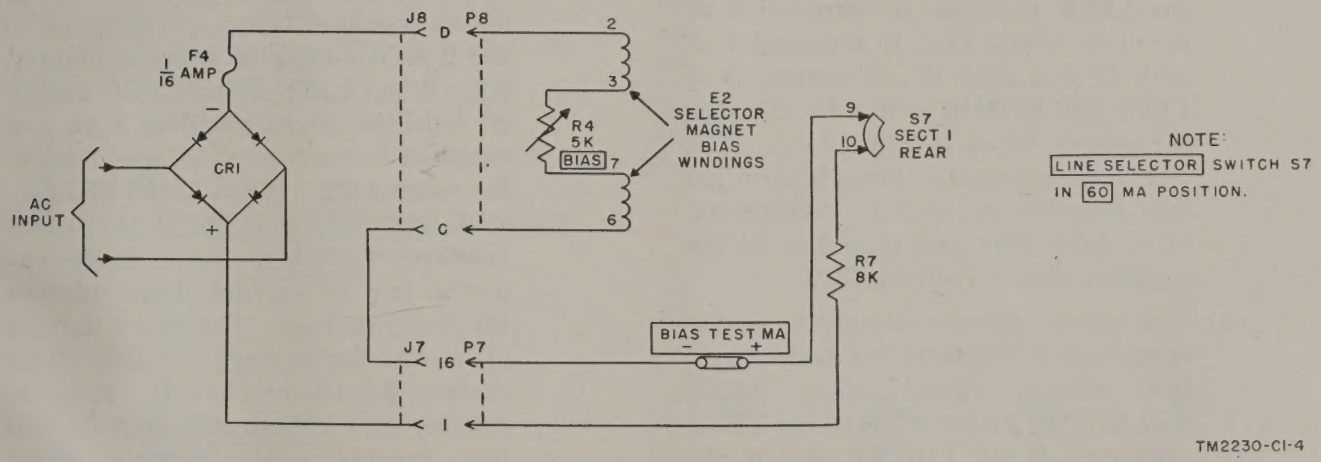


Figure 81.1. Teletypewriters TT-98A/FG, TT-99/FG, and TT-100/FG, selector magnet bias (60 ma) circuit, simplified schematic.

jack J4B, to terminal 6 of jack J7 and plug P7. It continues through resistor R6 to contact 11 of LINE SELECTOR switch S7, which is in the TEST position, through the switch rotor to contact 2 where the circuit divides. One part is traced to terminal 11 of plug P7 and jack J7, to terminal E of jack J8 and plug P8, to the 8–5 line winding of selector magnet E2, to terminal F of plug P8 and jack J8, to terminal 12 of jack J7 and plug P7, to contact 6 of LINE SELECTOR switch S7, through the switch rotor to contact 7, to terminal 15 of plug P7 and jack J7. The circuit joins here with the other part of the circuit that divided at contact 2 of LINE SELECTOR switch S7, continues to contact 5 of LINE SELECTOR switch S7, through the rotor to contact 10, through terminal 10 of plug P7 and jack J7, through

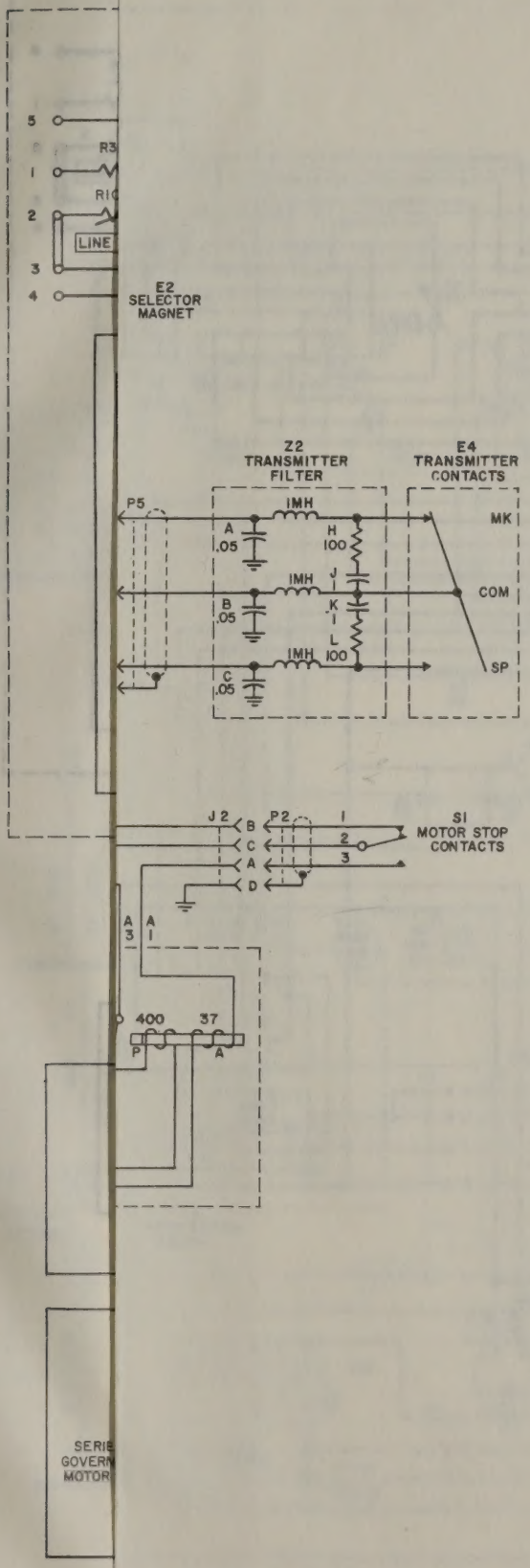
terminal B of jack J8 and plug P8, through the 1–4 line winding of selector magnet E2, to terminal A of plug P8 and jack J8. This places the two line windings of selector magnet E2 in parallel; the two parts of the circuit now join and continue to terminal 5 of motor stop relay E1, through a float and closed contact to terminal 4 of relay E1, to terminal 5 of jack J7 and plug P7, to contact 11 of LINE SELECTOR switch S7, through the switch rotor to contact 8, to terminal 13 of plug P7 and jack J7, to terminal A of jack J5 and plug P5, through transmitter filter Z2, to the common terminal of transmitter contacts E4, which is in the mark position. The circuit continues through the mark contact of transmitter contacts E4, through transmitter filter Z2, to terminal B of plug P5 and jack J5, to terminal 2 of terminal board TB2, to LINE BREAK switch S3 which is in the LINE position, to terminal 3 of terminal board TB2, to terminal 7 of jack J7 and plug P7, to contact 2 of LINE SELECTOR switch S7, through the switch rotor to contact 11. The circuit is completed through terminal 9 of plug P7 and jack J7, to terminal D of jack J4B and plug P4, to the negative side of rectifier CR2.

(3) The signal circuits connected to the terminals of the terminal and switchbox remain closed when LINE SELECTOR switch S7 is in the TEST position. If DC POWER switch S11 is in the ON position, the send circuit can be traced (fig. 78.1) from terminal 5 of the terminal and switchbox, or terminal 1 and resistor R3, to contact 7 of LINE SELECTOR switch S7, through the switch rotor to contact 4, through the contacts of DC POWER switch S11 to terminal 9 of plug P7 and jack J7, to terminal D of jack J4B and plug P4, from the negative to the positive side of rectifier CR2, through fuse F2, to terminal E of plug P4 and jack J4B, to terminal 6 of jack J7 and plug P7, through the contacts of DC POWER switch S11, through LINE CURRENT resistor R10 to terminal 2 of the terminal and switch box. If DC POWER switch S11 is in the OFF position, the send circuit can be traced from terminal 5 on the terminal and switchbox, or terminal 1 and resistor R3, to contact 7 of LINE SELECTOR switch S7, through the switch rotor to contact 4, through the contacts of DC POWER switch S11, through LINE CURRENT resistor R10 to terminal 2 on the terminal and switchbox. The receive circuit can be traced from terminal 3 of the terminal and switchbox, to contact 3 of LINE SELECTOR switch S7, through the switch rotor to contact 12, to terminal 4 on the terminal and switchbox.

b. Selector Magnet Bias Circuits.

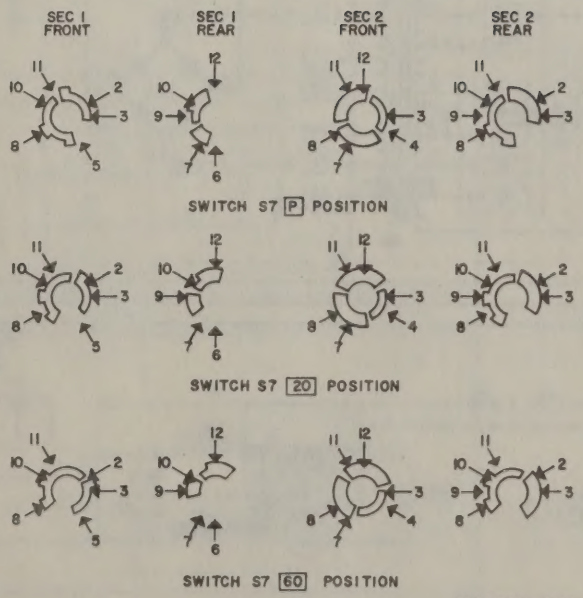
(1) The selector magnet bias circuits provide dc from rectifier CR1 to the bias windings of selector magnet E2. When LINE SELECTOR switch S7 is in the 60-ma position, 12 ma are supplied to the bias windings of selector magnet E2. When LINE SELECTOR switch S7 is in the 20-ma position, 8 ma are supplied to the bias windings of selector magnet E2. When LINE SELECTOR switch S7 is in the P (POLAR) position, the bias circuit is disconnected and no current flows through the bias windings. The bias windings are connected through variable BIAS resistor R4 which is locked. This circuit includes a strap arrangement and two binding posts marked BIAS TEST MA which have been provided as a convenient means for inserting a milliammeter in the circuit to measure the current. In neutral operation, the bias circuit controls the movement of the selector magnet (E2) armature to the space position.

(2) With LINE SELECTOR switch S7 (fig. 80.1) in the 20-ma position, the circuit is traced from the negative side of rectifier CR1, through fuse F4, to terminal D of jack J8 and plug P8, through the 2–3 bias winding of selector magnet E2, through BIAS resistor



NOTES:

1. SWITCH S7, VIEWED FROM KNOB END IS SHOWN IN [TEST] POSITION. ROTATE CW FOR [POLAR], [20] MA, OR [60] MA POSITIONS.
2. UNLESS OTHERWISE INDICATED, RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN UF.
3. [ ] INDICATES EQUIPMENT MARKING.
4. [BIAS TEST MA] PROVIDES AMMETER CONNECTION POINT FOR MEASURING BIAS CURRENT, NORMALLY CONNECTED WITH STRAP.
5. RESISTOR R4 IS MECHANICALLY LOCKED TO PROVIDE 12 MA WHEN [LINE SELECTOR] SWITCH S7 IS IN THE [TEST] POSITION.
6. [TEST VOLTS] JACKS J9 AND J10 PROVIDE VOLTMETER CONNECTION POINTS FOR MEASURING LINE VOLTAGE OUTPUT OF RECTIFIER CR2.



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terminal B of jack J8 and plug P8, through the 1–4 line winding of selector magnet E2, to terminal A of plug P8 and jack J8. This places the two line windings of selector magnet E2 in parallel; the two parts of the circuit now join and continue to terminal 5 of motor stop relay E1, through a float and closed contact to terminal 4 of relay E1, to terminal 5 of jack J7 and plug P7, to contact 11 of LINE SELECTOR switch S7, through the switch rotor to contact 8, to terminal 13 of plug P7 and jack J7, to terminal A of jack J5 and plug P5, through transmitter filter Z2, to the common terminal of transmitter contacts E4, which is in the mark position. The circuit continues through the mark contact of transmitter contacts E4, through transmitter filter Z2, to terminal B of plug P5 and jack J5, to terminal 2 of terminal board TB2, to LINE BREAK switch S3 which is in the LINE position, to terminal 3 of terminal board TB2, to terminal 7 of jack J7 and plug P7, to contact 2 of LINE SELECTOR switch S7, through the switch rotor to contact 11. The circuit is completed through terminal 9 of plug P7 and jack J7, to terminal D of jack J4B and plug P4, to the negative side of rectifier CR2.

(3) The signal circuits connected to the terminals of the terminal and switchbox remain closed when LINE SELECTOR switch S7 is in the TEST position. If DC POWER switch S11 is in the ON position, the send circuit can be traced (fig. 78.1) from terminal 5 of the terminal and switchbox, or terminal 1 and resistor R3, to contact 7 of LINE SELECTOR switch S7, through the switch rotor to contact 4, through the contacts of DC POWER switch S11 to terminal 9 of plug P7 and jack J7, to terminal D of jack J4B and plug P4, from the negative to the positive side of rectifier CR2, through fuse F2, to terminal E of plug P4 and jack J4B, to terminal 6 of jack J7 and plug P7, through the contacts of DC POWER switch S11, through LINE CURRENT resistor R10 to terminal 2 of the terminal and switch box. If DC POWER switch S11 is in the OFF position, the send circuit can be traced from terminal 5 on the terminal and switchbox, or terminal 1 and resistor R3, to contact 7 of LINE SELECTOR switch S7, through the switch rotor to contact 4, through the contacts of DC POWER switch S11, through LINE CURRENT resistor R10 to terminal 2 on the terminal and switchbox. The receive circuit can be traced from terminal 3 of the terminal and switchbox, to contact 3 of LINE SELECTOR switch S7, through the switch rotor to contact 12, to terminal 4 on the terminal and switchbox.

b. Selector Magnet Bias Circuits.

(1) The selector magnet bias circuits provide dc from rectifier CR1 to the bias windings of selector magnet E2. When LINE SELECTOR switch S7 is in the 60-ma position, 12 ma are supplied to the bias windings of selector magnet E2. When LINE SELECTOR switch S7 is in the 20-ma position, 8 ma are supplied to the bias windings of selector magnet E2. When LINE SELECTOR switch S7 is in the P (POLAR) position, the bias circuit is disconnected and no current flows through the bias windings. The bias windings are connected through variable BIAS resistor R4 which is locked. This circuit includes a strap arrangement and two binding posts marked BIAS TEST MA which have been provided as a convenient means for inserting a milliammeter in the circuit to measure the current. In neutral operation, the bias circuit controls the movement of the selector magnet (E2) armature to the space position.

(2) With LINE SELECTOR switch S7 (fig. 80.1) in the 20-ma position, the circuit is traced from the negative side of rectifier CR1, through fuse F4, to terminal D of jack J8 and plug P8, through the 2–3 bias winding of selector magnet E2, through BIAS resistor

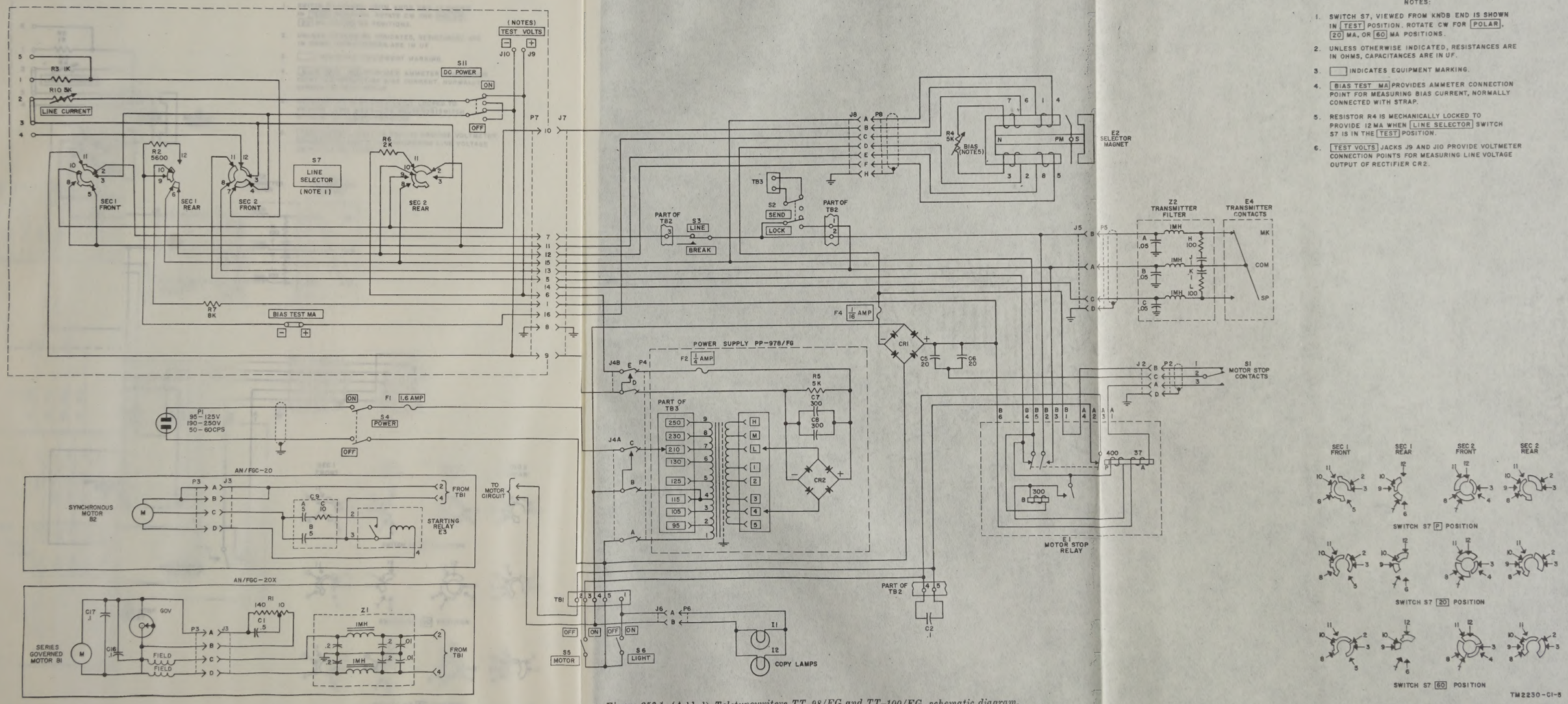
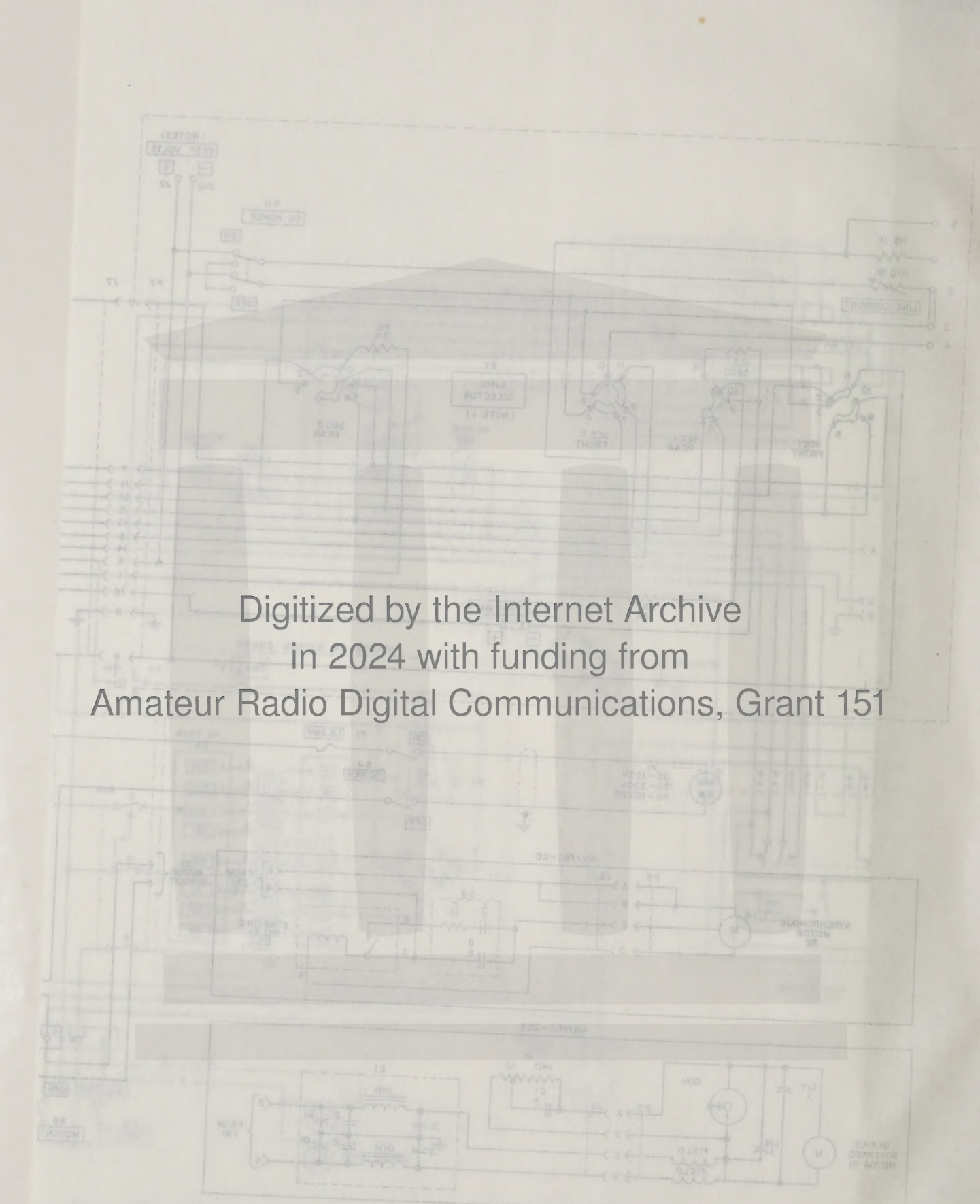


Figure 253.1. (Added) *Teletypewriters TT–98/FG and TT–100/FG, schematic diagram.*



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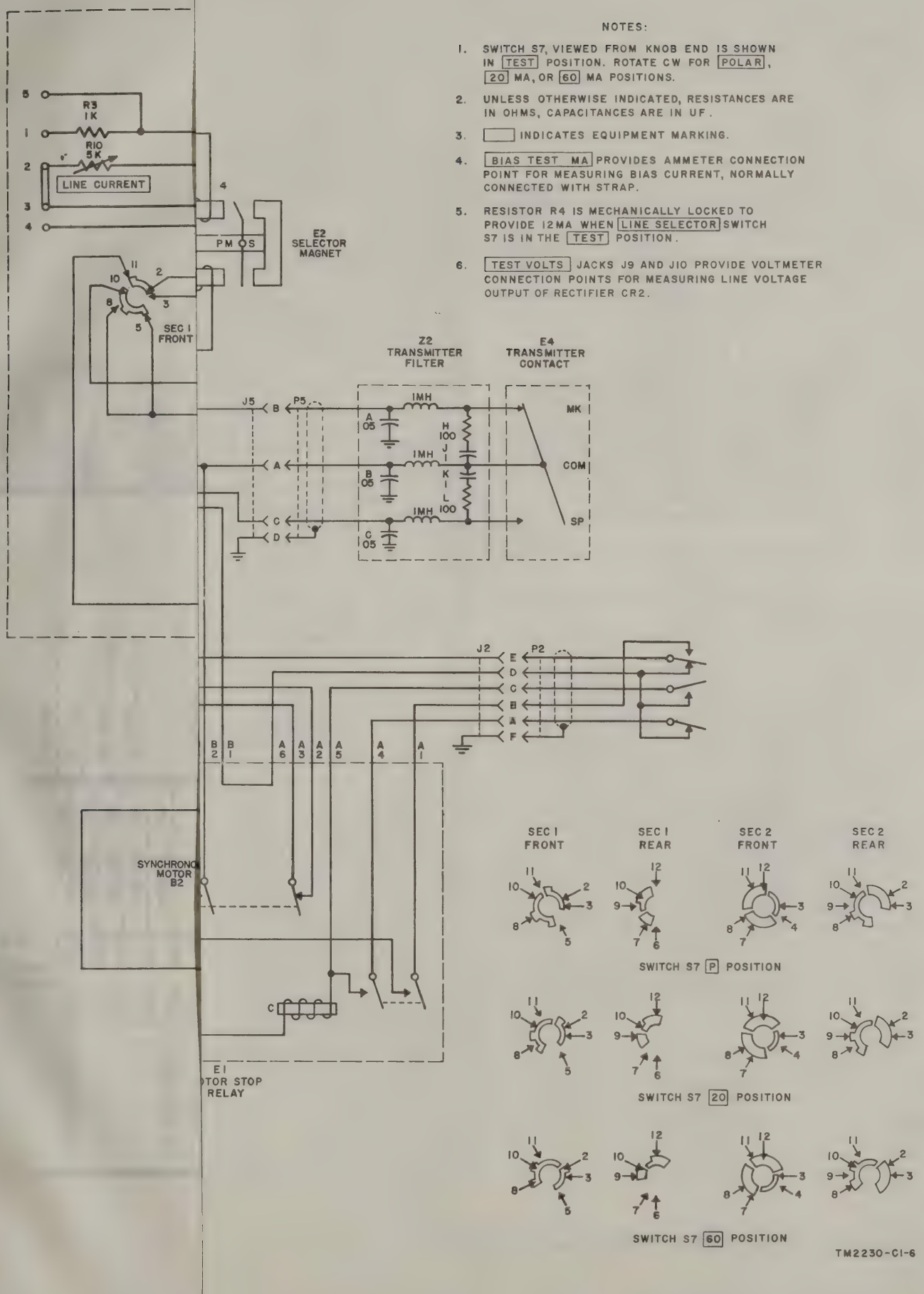
NOTES:
1. SWITCH S7, VIEWED FROM KNOB END IS SHOWN IN [TEST] POSITION. ROTATE CW FOR [POLAR], [20] MA, OR [60] MA POSITIONS.
2. UNLESS OTHERWISE INDICATED, RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN UF.
3. [ ] INDICATES EQUIPMENT MARKING.
4. [BIAS TEST MA] PROVIDES AMMETER CONNECTION POINT FOR MEASURING BIAS CURRENT, NORMALLY CONNECTED WITH STRAP.
5. RESISTOR R4 IS MECHANICALLY LOCKED TO PROVIDE 12MA WHEN [LINE SELECTOR] SWITCH S7 IS IN THE [TEST] POSITION.
6. [TEST VOLTS] JACKS J9 AND J10 PROVIDE VOLTMETER CONNECTION POINTS FOR MEASURING LINE VOLTAGE OUTPUT OF RECTIFIER CR2.
R3 1K
R10 5K
LINE CURRENT
E2 SELECTOR MAGNET
PM OS
SEC 1 FRONT
Z2 TRANSMITTER FILTER
E4 TRANSMITTER CONTACT
J5
P5
IMH
A .05
B .05
C .05
H 100
J
K
L
100
MK
COM
SP
J2
P2
SYNCHRONOUS MOTOR B2
E1 MOTOR STOP RELAY
SEC 1 FRONT
SEC 1 REAR
SEC 2 FRONT
SEC 2 REAR
SWITCH S7 [P] POSITION
SWITCH S7 [20] POSITION
SWITCH S7 [60] POSITION
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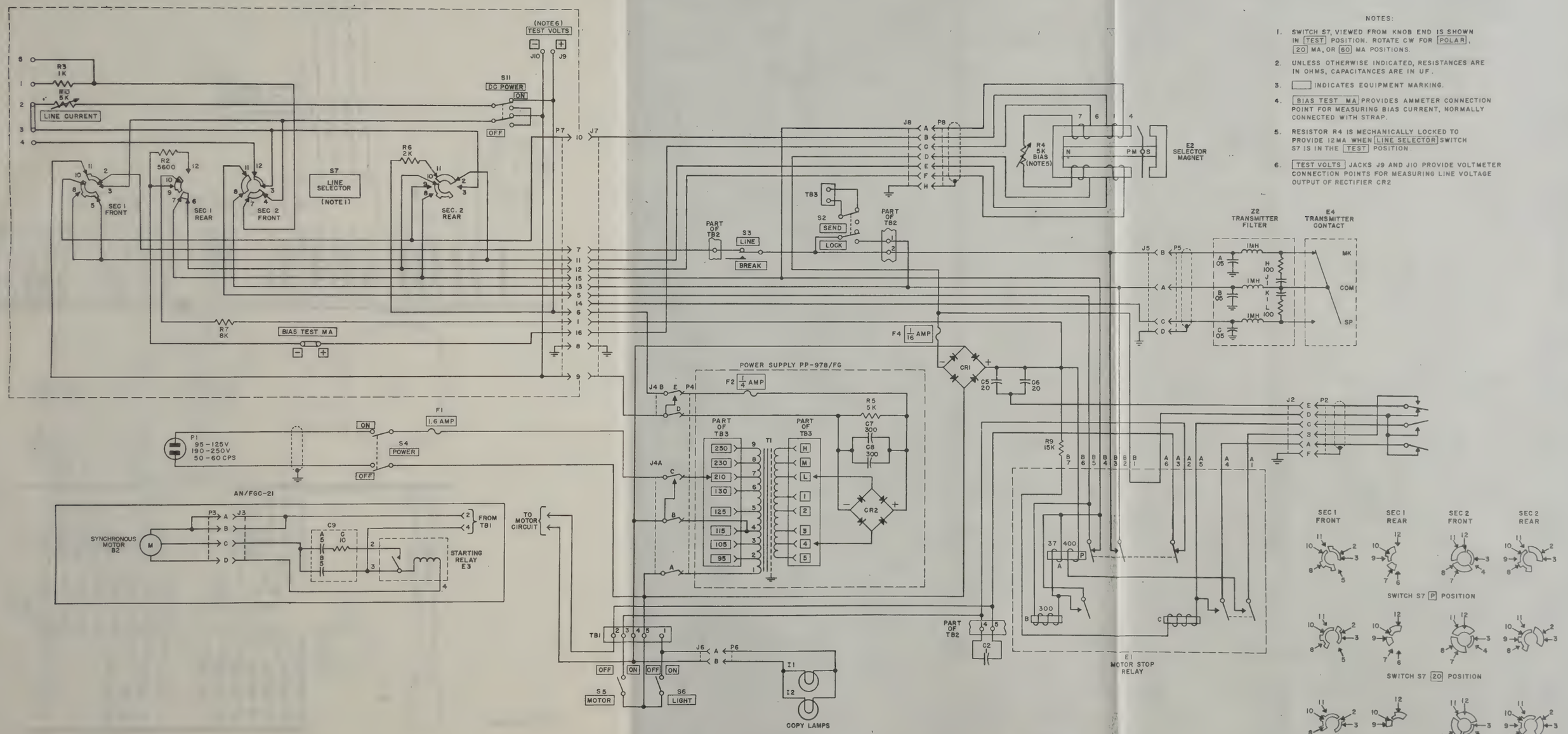

Figure 254. (Superseded) *Teletypewriter TT-99/FG, schematic diagram.*

NOTES:
1. THE SMALL NUMBE
COMMON OR BASE L
NUMBER ADJACENT
2. ⊏⊐ DENOTES SHIE
3. J9 AND J10 ARE FOR
1
4
5
R7
R6
BIAS TEST MA
R1
S1
13
P2 TO J2 (39)
14
15
16
S11
R10
J10
J9
B1
22
P7 TO
J7 (38)
23
SEC 1
E4
27
I2
TM2230-CI-7 (1)

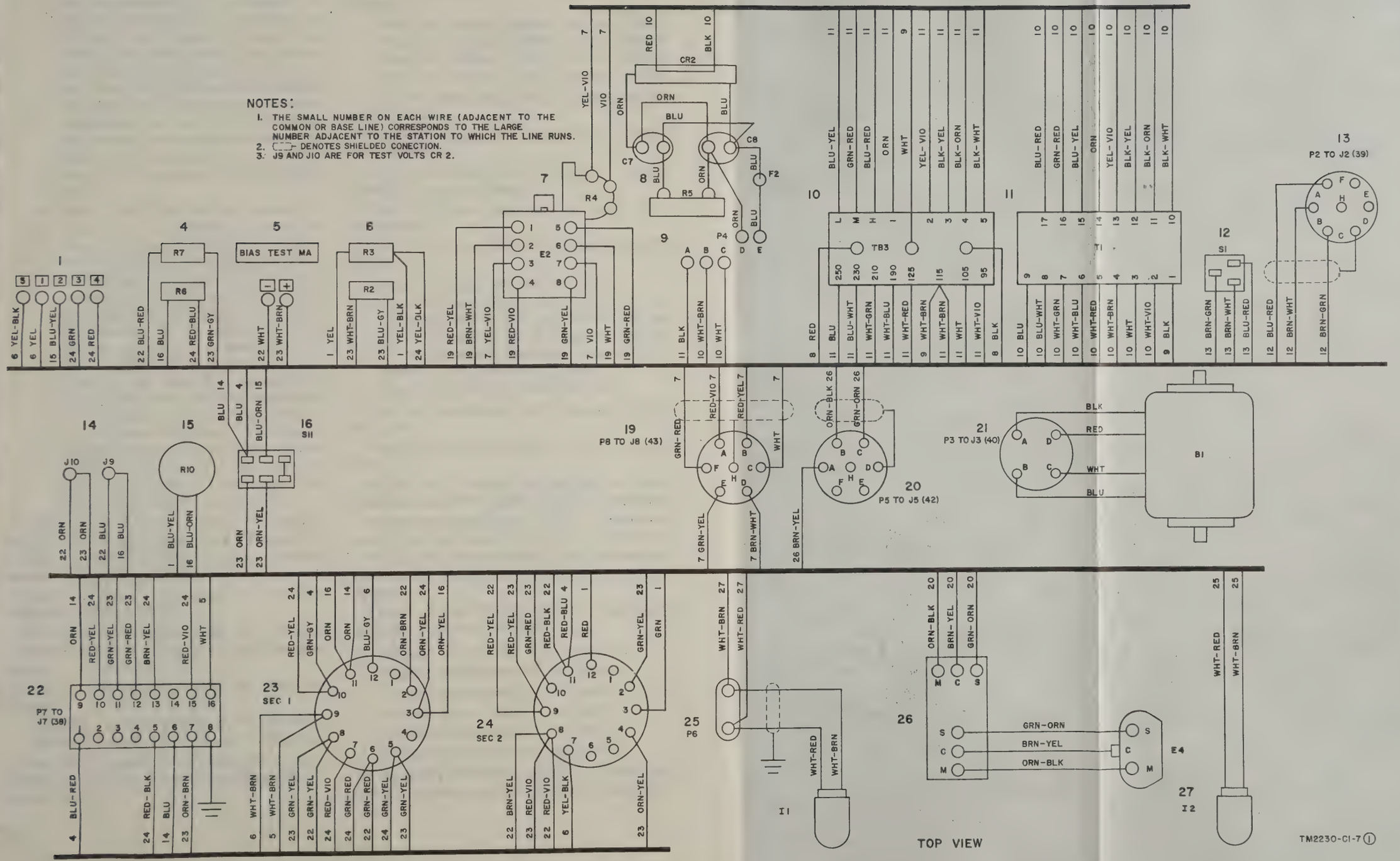

Figure 255. (TOP VIEW) (Superseded) *Teletypewriter TT–100/FG, airline diagram.*

R4, through the 7–6 bias winding of selector magnet E2, to terminal C of plug P8 and jack J8, to terminal 16 of jack J7, and plug P7, through the BIAS TEST MA strap. The circuit continues through resistor R2 to contact 12 of LINE SELECTOR switch S7 which is in the 20-ma position, through the switch rotor to contact 10. The circuit is completed through resistor R7 to terminal 1 of plug P7 and jack J7, to the positive side of rectifier CR1.

(3) With LINE SELECTOR switch S7 (fig. 81.1) in the 60-ma position, the circuit is traced from the negative side of rectifier CR1 through fuse F4, to terminal D of jack J8 and plug P8, through the 2–3 bias winding of selector magnet E2, through BIAS resistor R4, through the 7–6 bias winding of selector magnet E2, to terminal C of plug P8 and jack J8, to terminal 16 of jack J7 and plug P7, through the BIAS TEST MA strap to contact 9 of LINE SELECTOR switch S7 which is in the 60-ma position. The circuit continues through the switch rotor to contact 10, through resistor R7 to terminal 1 of plug P7 and jack J7, to the positive side of rectifier CR1.

c. Motor Stop Circuits (fig. 85). The motor stop circuits for Teletypewriters TT–98A/FG, TT–99/FG, and TT–100/FG are the same as described in paragraph 78*f*.

Page 119, figure 106. Item 36. Change "54083A" to read: **54083.**

Page 121, figure 108. Item 40. Change "(20769 and 11070)" to read: **(56834A includes a set).**

Page 125, figure 109. Make the following changes:

Item 38. Add: (57076A on TT–99/FG).
Item 42. Add: (57077A on TT–99/FG).

Page 157, figure 126. Item 29. Add: (52770A on TT–99/FG includes items 30, 31, 32, and 33).

Page 166, figure 131. Make the following changes:

Item 14. Change "10852" to read: **10863.**
Item 16. Change "10850" to read: **10862.**
Item 18. Change "10852" to read: **10863.**
Item 20. Change "10852" to read: **10863.**

Page 174, figure 135. Item 9. Add: (57078A on TT–99/FG).

Page 178, figure 139. Item 9. Add: (57079 on TT–99/FG).

Page 190, figure 145. Item 16. Change "56685A" to read: **57053A.**

Page 196, figure 148. Item 18. Add: (TT–98/FG only).

Page 197, figure 149. Make the following changes:

Item 1. Add: (TT–98/FG only).
Item 2. Add: (R8 is used on TT–98/FG only; on TT–98A/FG, TT–99/FG, and TT–100/FG, R8 is removed and R10 is physically located in place of R8).
Item 6. Add: (TT–98/FG only).
Item 16. Add: (TT–98/FG only).

Page 233, paragraph 265*a*. Change ".003" to read: **.005.**

Page 233, figure 237. Change ".003" to read: **.005.**

Figure 253. Change the caption to read: **Teletypewriter TT–98/FG, schematic diagram.**

Figure 255 (BOTTOM VIEW). Delete station 37 and the three leads that go to station 38.

Figure 256 (TOP VIEW). Change the caption to read: **Teletypewriter TT–98/FG, airline diagram.**

Figure 256 (BOTTOM VIEW). Station 33. Make the following changes:

Change pin number "1" to read: **2.**
Change pin number "2" to read: **3.**
Change pin number "3" to read: **4.**
Change pin number "4" to read: **5.**
Change pin number "5" to read: **6.**
Change pin number "6" to read: **1.**

Figure 257 (BOTTOM VIEW). Delete station 37 and the three leads that go to station 38.

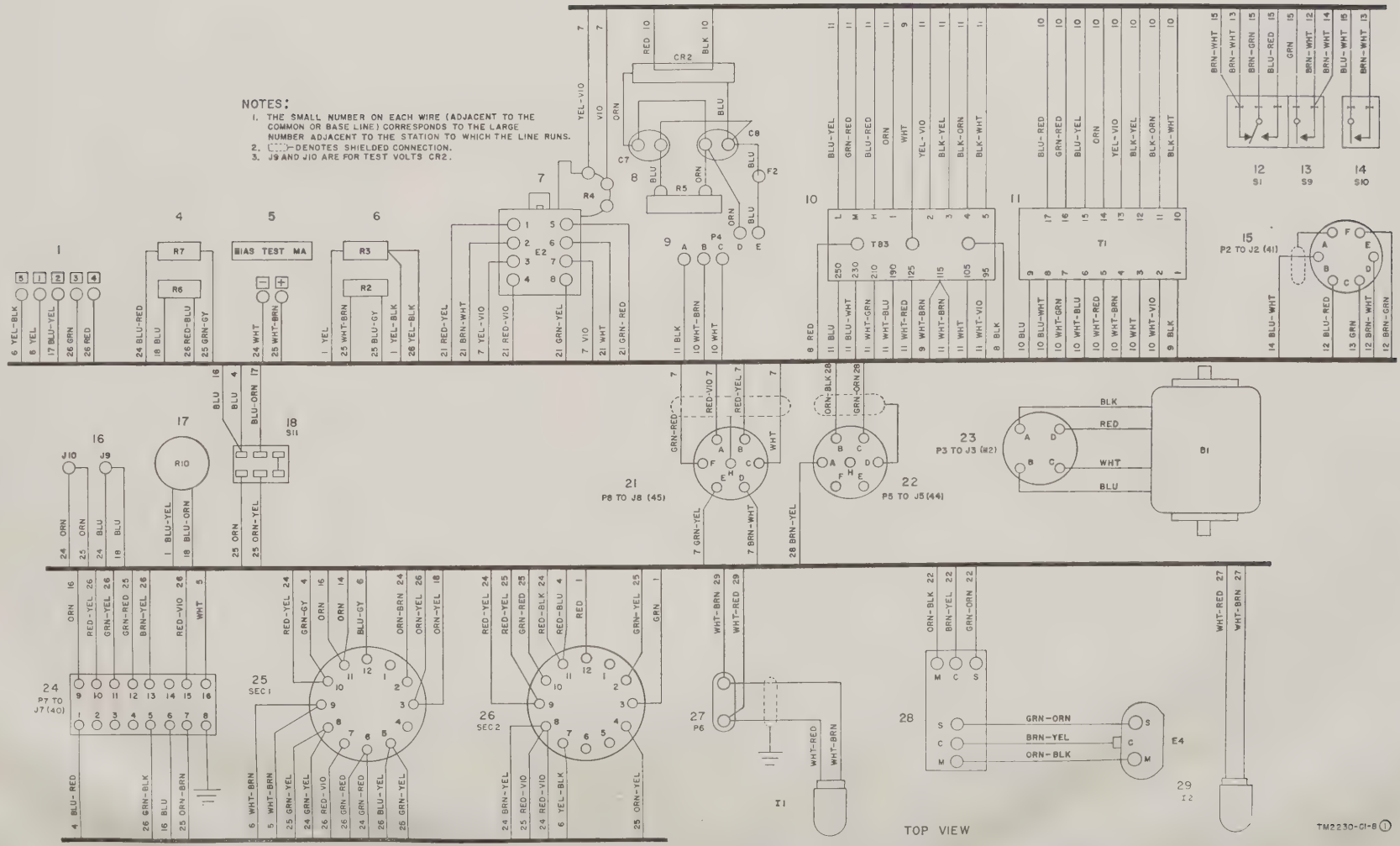
NOTES:
1. THE SMALL NUMBER ON EACH WIRE (ADJACENT TO THE COMMON OR BASE LINE) CORRESPONDS TO THE LARGE NUMBER ADJACENT TO THE STATION TO WHICH THE LINE RUNS.
2. [ ] DENOTES SHIELDED CONNECTION.
3. J9 AND J10 ARE FOR TEST VOLTS CR2.
BIAS TEST MA
P2 TO J2 (41)
P8 TO J8 (45)
P5 TO J5 (44)
P3 TO J3 (M2)
P7 TO J7 (40)
SEC 1
SEC 2
P6
TOP VIEW
TM2230-CI-8

Figure 256.1. (Added) *Teletypewriter TT–98A/FG, airline diagram.*

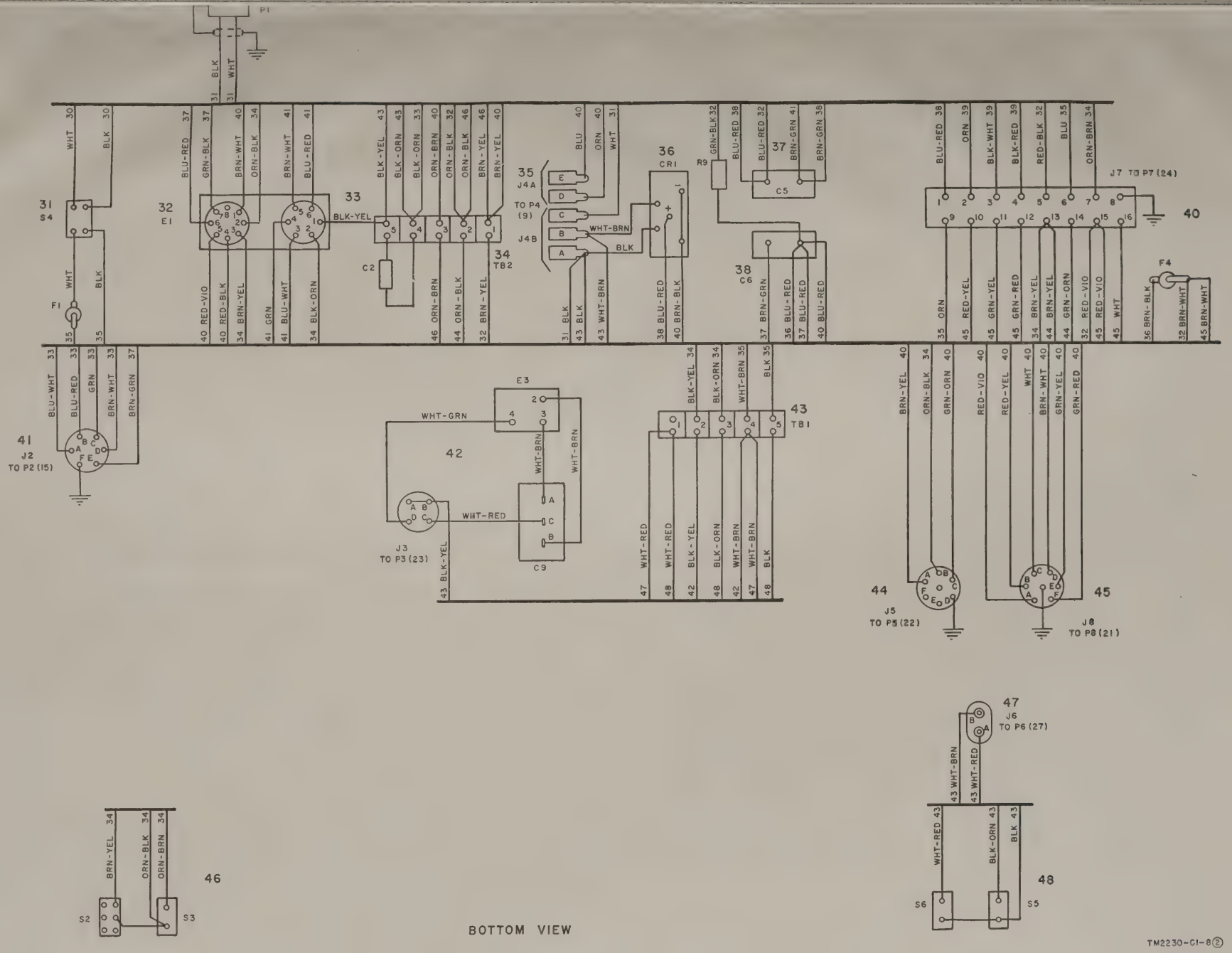

Figure 256.1—Continued.

NOTES:
1. THE SH
COMMON
NUMBE
2.
3. J9 AND
1
4
5
12
13
P2 TO J2 (39)
R7
R6
BIAS TEST M
T1
S1
6 YEL-BLK
6 YEL
15 BLU-YEL
24 GRN
24 RED
22 BLU-RED
16 BLU
24 RED-BLU
23 GRN-GY
22 WHT
23 WHT-BRN
10 BLU-WHT
10 WHT-GRN
10 WHT-BLU
10 WHT-RED
10 WHT-BRN
10 WHT
10 WHT-VIO
9 BLK
10 BLU-RED
10 GRN-RED
10 BLU-YEL
10 ORN
10 YEL-VIO
10 BLK-YEL
10 BLK-ORN
10 BLK-WHT
13 BRN-GRN
13 BRN-WHT
13 BLU-RED
12 BLU-RED
12 BRN-WHT
12 BRN-GRN
F
A
E
H
B
D
C
14
15
16
S11
J10
J9
R10
22 ORN
23 ORN
22 BLU
16 BLU
1 BLU-YEL
16 BLU-ORN
23 ORN
23 ORN-YEL
14 BLU
4 BLU
15 BLU-ORN
RED
BLK
BLK
RED
D
C
B1
22
P7 TO
J7 (38)
23
SEC 1
ORN 14
RED-YEL 24
GRN-YEL 23
GRN-RED 23
BRN-YEL 24
RED-VIO 24
WHT 5
RED-YEL 24
9 10 11 12 13 14 15 16
1 2 3 4 5 6 7 8
4 BLU-RED
24 RED-BLK
14 BLU
23 ORN-BRN
6 WHT-BRN
5 WHT-BRN
23 GRN-YEL
-ORN
-YEL
-BLK
S
C
M
E4
27
I2
WHT-RED 25
WHT-BRN 25
TM2230-CI-9 ①

[AG 413.48(2 Oct 56)]

By Order of *Wilber M. Brucker*, Secretary of the Army:

MAXWELL D. TAYLOR,
General, United States Army,
Chief of Staff.

Official:

JOHN A. KLEIN,
Major General, United States Army,
The Adjutant General.

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Div (2)
Ft & Cp (2)
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Army Cml Cen (4)
Gen & Br Svc Sch (5) except Sig Sch (25)
Gen Depots (2) except Atlanta Gen Depot (None)
Sig Sec, Gen Depots (10)
Sig Depots (17)
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Mil Dist (1)
Units org under fol TOE:
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11–16C, Hq & Hq Co, Sig Bn, Corps or Abn Corps (2)
11–57C, Armed Sig Co (2)
11–127R, Sig Rep Co (2)
11–128C, Sig Depot Co (2)
11–500R, Sig Svc Org (2)
11–557C, Abn Sig Co (2)
11–587R, Sig Base Maint Co (2)
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NG:
State AG (6); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see SR 320–50–1.

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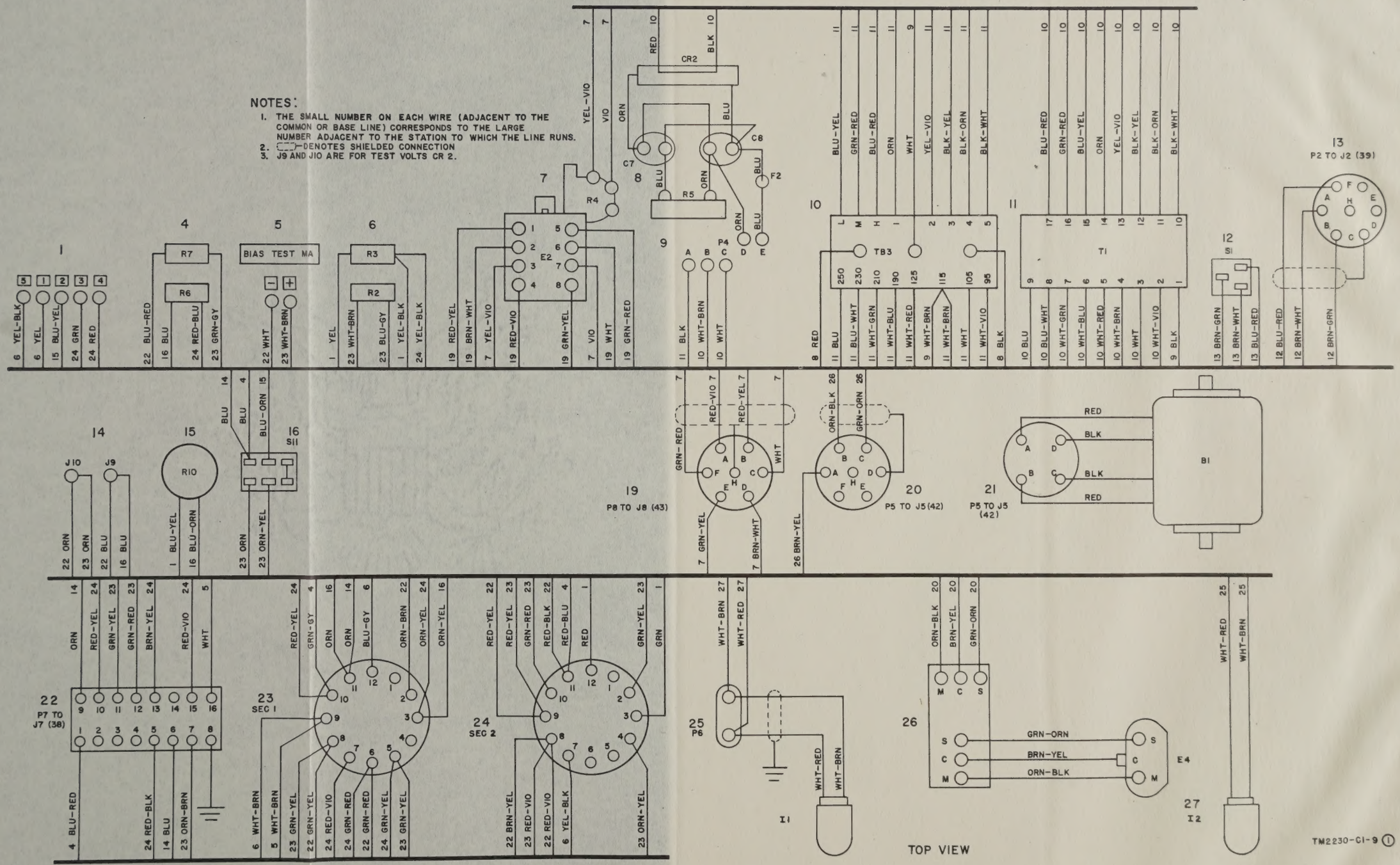

Figure 257. (Superseded) *Teletypewriter TT-99/FG, airline diagram.*

[AG 413.48(2 Oct 56)]

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Corps (2)
Div (2)
Ft & Cp (2)
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Army Cml Cen (4)
Gen & Br Svc Sch (5) except Sig Sch (25)
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Sig Sec, Gen Depots (10)
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11–57C, Armed Sig Co (2)
11–127R, Sig Rep Co (2)
11–128C, Sig Depot Co (2)
11–500R, Sig Svc Org (2)
11–557C, Abn Sig Co (2)
11–587R, Sig Base Maint Co (2)
11–592R, Hq & Hq Co, Sig Base Depot (2)
11–597R, Sig Base Depot Co (2)

NG:
State AG (6); units—same as Active Army except allowance is one copy to each unit.
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